

What is claimed is:

1. An image processing method for correcting data of defective pixels in image information, comprising the steps of:

dividing the image information into data of sound pixels and data of defective pixels;

calculating an interpolation signal value of each of the defective pixels on the basis of data of a plurality of sound pixels existing in the surrounding area of each of the defective pixels in the image information;

calculating a provisional correction value for correcting data of each of the defective pixels on the basis of the signal value and the interpolation signal value of each of the defective pixels; and

calculating a modified pixel correction value of each of the defective pixels on the basis of the provisional correction value of each of the defective pixels and the provisional correction value of neighboring defective pixels existing in the neighborhood of each of the defective pixels; and

correcting the data of each of the defective pixels by the use of the modified pixel correction value.

2. The image processing method of claim 1, wherein the image information is composed of information concerning at least three kinds of plural color components; and in the step of calculating the modified pixel correction value, each of the provisional correction values is calculated for each of the plural color components, and each of modified pixel correction values for each of the plural color components is calculated from each of the provisional correction values for each of the plural color components.

3. An image processing method for correcting data of defective pixels in image information, comprising the steps of:

    sorting the image information into data of a sound area and data of a defective area;

    defining a group of sound pixels existing within a first specified distance from the boundary of the defective area as a peripheral area;

calculating respective characteristic values of the defective area and the peripheral area existing within a second specified distance from each of the defective pixels;

calculating a correction value to be used in the correction of the image data of each of the defective pixels on the basis of the characteristic values; and

correcting image data of the defective area through the correction of each of all the defective pixels by the use of the correction value concerned.

4. An image processing method for correcting data of defective pixels in image information, comprising the steps of:

sorting the image information into data of a sound area and data of a defective area;

defining a group of sound pixels existing within a first specified distance from the boundary of the defective area as a peripheral area;

calculating first information by applying a specified high-pass filter to the image data of pixels in the defective area located within a second specified distance from each of the defective pixels;

calculating second information by applying a specified low-pass filter to the image data of pixels in the peripheral area located within a third specified distance from each of the defective pixels;

calculating third information by an addition operation of the first information and the second information; and

correcting the image data of the defective area by substituting the image data of each of the defective pixels with the third information.

5. An image processing method for correcting data of defective pixels in image information, comprising the steps of:

dividing image data of defective pixels into a plurality of groups on the basis of their respective feature quantities;

calculating provisional correction values for correcting the image data of each of the defective pixels in the image information;

calculating a modified pixel correction value for each of the defective pixels, on the basis of each of the provisional correction values of each of the defective pixels and the provisional correction values of neighboring

defective pixels which belong to the same group as each of the defective pixels and exist in the neighborhood of each of the defective pixels; and

correcting the image data of each of the defective pixels by the use of the modified pixel correction value.

6. An image processing method for correcting data of defective pixels in image information, comprising the steps of:

sorting image information including visible image information and infrared image information into image data of a sound area and image data of a defective area;

calculating, for each of the defective pixels within a specified distance from a target defective pixel to become the object of correction, a first pixel correction value on the basis of visible image information of pixels existing in the sound area, and obtaining a total sum of the first pixel correction value;

calculating, for each of the defective pixels within the specified distance, an infrared difference data is calculated on the basis of the infrared image information, and obtaining a total sum of the infrared difference data;

calculating a proportion of the infrared difference data corresponding to the target defective pixel to the total sum of the infrared difference data; and

correcting the image data of the target defective pixel, on the basis of the total sum of the first pixel correction values and the proportion.

7. An image processing apparatus for correcting data of defective pixels in image information, comprising:

an image acquiring section for acquiring an image information; and

a image processor for processing the image information, wherein the image processor is configured to:

divide the image information into data of sound pixels and data of defective pixels;

calculate an interpolation signal value of each of the defective pixels on the basis of data of a plurality of sound pixels existing in the surrounding area of each of the defective pixels in the image information;

calculate a provisional correction value for correcting data of each of the defective pixels on the basis of the signal value and the interpolation signal value of each of the defective pixels; and

calculate a modified pixel correction value of each of the defective pixels on the basis of the provisional correction value of each of the defective pixels and the provisional correction value of neighboring defective pixels existing in the neighborhood of each of the defective pixels; and

correct the data of each of the defective pixels by the use of the modified pixel correction value.

8. The image processing apparatus of claim 7, wherein the image information is composed of information concerning at least three kinds of plural color components; and when the image processor calculates the modified pixel correction value, each of the provisional correction values is calculated for each of the plural color components, and each of modified pixel correction values for each of the plural color components is calculated from each of the provisional correction values for each of the plural color components.

9. An image processing apparatus for correcting data of defective pixels in image information, comprising:

an image acquiring section for acquiring an image information; and

a image processor for processing the image information,  
wherein the image processor is configured to:

sort the image information into data of a sound  
area and data of a defective area;

define a group of sound pixels existing within a  
first specified distance from the boundary of the defective  
area as a peripheral area;

calculate respective characteristic values of the  
defective area and the peripheral area existing within a  
second specified distance from each of the defective pixels;

calculate a correction value to be used in the  
correction of the image data of each of the defective pixels  
on the basis of the characteristic values; and

correct image data of the defective area through  
the correction of each of all the defective pixels by the use  
of the correction value concerned.

10. An image processing apparatus for correcting data of  
defective pixels in image information, comprising:

an image acquiring section for acquiring an image  
information; and

a image processor for processing the image information,  
wherein the image processor is configured to:



sorting the image information into data of a sound area and data of a defective area;

define a group of sound pixels existing within a first specified distance from the boundary of the defective area as a peripheral area;

calculate first information by applying a specified high-pass filter to the image data of pixels in the defective area located within a second specified distance from each of the defective pixels;

calculate second information by applying a specified low-pass filter to the image data of pixels in the peripheral area located within a third specified distance from each of the defective pixels;

calculate third information by an addition operation of the first information and the second information; and

correcte the image data of the defective area by substituting the image data of each of the defective pixels with the third information.

11. An image processing apparatus for correcting data of defective pixels in image information, comprising:

an image acquiring section for acquiring an image information; and

a image processor for processing the image information, wherein the image processor is configured to:

divide image data of defective pixels into a plurality of groups on the basis of their respective feature quantities;

calculate provisional correction values for correcting the image data of each of the defective pixels in the image information;

calculate a modified pixel correction value for each of the defective pixels, on the basis of each of the provisional correction values of each of the defective pixels and the provisional correction values of neighboring defective pixels which belong to the same group as each of the defective pixels and exist in the neighborhood of each of the defective pixels; and

correcte the image data of each of the defective pixels by the use of the modified pixel correction value.

12. An image processing apparatus for correcting data of defective pixels in image information, comprising:

an image acquiring section for acquiring an image information; and

a image processor for processing the image information, wherein the image processor is configured to:

sorte image information including visible image information and infrared image information into image data of a sound area and image data of a defective area;

calculate, for each of the defective pixels within a specified distance from a target defective pixel to become the object of correction, a first pixel correction value on the basis of visible image information of pixels existing in the sound area, and obtaining a total sum of the first pixel correction value;

calculate, for each of the defective pixels within the specified distance, an infrared difference data is calculated on the basis of the infrared image information, and obtaining a total sum of the infrared difference data;

calculate a proportion of the infrared difference data corresponding to the target defective pixel to the total sum of the infrared difference data; and

correct the image data of the target defective pixel, on the basis of the total sum of the first pixel correction values and the proportion.

13. An image processing program for making a computer actualize an image processing function to correct data of defective pixels in image information, the image processing function comprising the functions of:

dividing the image information into data of sound pixels and data of defective pixels;

calculating an interpolation signal value of each of the defective pixels on the basis of data of a plurality of sound pixels existing in the surrounding area of each of the defective pixels in the image information;

calculating a provisional correction value for correcting data of each of the defective pixels on the basis of the signal value and the interpolation signal value of each of the defective pixels; and

calculating a modified pixel correction value of each of the defective pixels on the basis of the provisional correction value of each of the defective pixels and the provisional correction value of neighboring defective pixels existing in the neighborhood of each of the defective pixels; and

correcting the data of each of the defective pixels by the use of the modified pixel correction value.

14. The image processing program of claim 13, wherein the image information is composed of information concerning at least three kinds of plural color components; and in the function of calculating the modified pixel correction value, each of the provisional correction values is calculated for each of the plural color components, and each of modified pixel correction values for each of the plural color components is calculated from each of the provisional correction values for each of the plural color components.

15. An image processing program for making a computer actualize an image processing function to correct data of defective pixels in image information, the image processing function comprising the functions of:

- sorting the image information into data of a sound area and data of a defective area;

- defining a group of sound pixels existing within a first specified distance from the boundary of the defective area as a peripheral area;

- calculating respective characteristic values of the defective area and the peripheral area existing within a second specified distance from each of the defective pixels;

calculating a correction value to be used in the correction of the image data of each of the defective pixels on the basis of the characteristic values; and

correcting image data of the defective area through the correction of each of all the defective pixels by the use of the correction value concerned.

16. An image processing method for correcting data of defective pixels in image information, comprising the steps of:

sorting the image information into data of a sound area and data of a defective area;

defining a group of sound pixels existing within a first specified distance from the boundary of the defective area as a peripheral area;

calculating first information by applying a specified high-pass filter to the image data of pixels in the defective area located within a second specified distance from each of the defective pixels;

calculating second information by applying a specified low-pass filter to the image data of pixels in the peripheral area located within a third specified distance from each of the defective pixels;

calculating third information by an addition operation of the first information and the second information; and

correcting the image data of the defective area by substituting the image data of each of the defective pixels with the third information.

17. An image processing program for making a computer actualize an image processing function to correct data of defective pixels in image information, the image processing function comprising the functions of:

dividing image data of defective pixels into a plurality of groups on the basis of their respective feature quantities;

calculating provisional correction values for correcting the image data of each of the defective pixels in the image information;

calculating a modified pixel correction value for each of the defective pixels, on the basis of each of the provisional correction values of each of the defective pixels and the provisional correction values of neighboring defective pixels which belong to the same group as each of the defective pixels and exist in the neighborhood of each of the defective pixels; and

correcting the image data of each of the defective pixels by the use of the modified pixel correction value.

18. An image processing program for making a computer actualize an image processing function to correct data of defective pixels in image information, the image processing function comprising the functions of:

    sorting image information including visible image information and infrared image information into image data of a sound area and image data of a defective area;

    calculating, for each of the defective pixels within a specified distance from a target defective pixel to become the object of correction, a first pixel correction value on the basis of visible image information of pixels existing in the sound area, and obtaining a total sum of the first pixel correction value;

    calculating, for each of the defective pixels within the specified distance, an infrared difference data is calculated on the basis of the infrared image information, and obtaining a total sum of the infrared difference data;

    calculating a proportion of the infrared difference data corresponding to the target defective pixel to the total sum of the infrared difference data; and



correcting the image data of the target defective pixel, on the basis of the total sum of the first pixel correction values and the proportion.